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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,416	04/02/2004	Daniel J. Goodman	NC 95,855	3209
26384	7590	11/03/2005	EXAMINER	
NAVAL RESEARCH LABORATORY ASSOCIATE COUNSEL (PATENTS) CODE 1008.2 4555 OVERLOOK AVENUE, S.W. WASHINGTON, DC 20375-5320			NGUYEN, DUC M	
			ART UNIT	PAPER NUMBER
			2685	

DATE MAILED: 11/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/817,416

Applicant(s)

GOODMAN, DANIEL J.

Examiner

Duc M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-30 and 55-59 is/are allowed.
- 6) ☒ Claim(s) 31-50 and 52-54 is/are rejected.
- 7) ☒ Claim(s) 51 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Information Disclosure Statement*

1. The references listed in the information disclosure statements submitted on 8/28/05 has been considered by the examiner (see attached PTO-1449).

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims **31-36** are rejected under 35 U.S.C. 102(b) as being anticipated by **Ito et al** (US 5,852,784).

Regarding claim **31**, **Ito** discloses a superheterodyne receiver suitable receiving RF energy in an upper frequency band and a lower frequency band and for translating the received RF energy to an output frequency, the receiver comprising:

- a source for the first LO as claimed (see Fig. 2, ref. 32 and col. 6, lines 51-65);
- a first mixer (6) arranged for mixing the RF energy in the lower frequency band with a first local oscillator signal to produce a signal at a first intermediate frequency;
- at least one filter (8) as claimed (see Fig. 2 and col. 7, lines 1-6);
- a second mixer (7) arranged for mixing the RF energy in the upper frequency band with the first local oscillator signal to produce a signal at a second intermediate frequency;

at least one filter (9) as claimed (see Fig. 2 and col. 7, lines 1-6);

a third mixer (see demodulator 13) for mixing a second local oscillator signal (18, 23a) with the signal at the first intermediate frequency or with the signal at the second intermediate frequency to produce a signal at the output frequency, the output frequency being lower than the first intermediate frequency and the second intermediate frequency (see col. 7, lines 7-18, wherein it is clear that the frequency of baseband signals would be zero and thus its zero frequency is lower than first and second intermediate frequencies).

Regarding claim **32**, the claim is rejected for the same reason as set forth in claim 31 above.

Regarding claims **33-36**, the claims are rejected for the same reason as set forth in claim 32 above. In addition, **Ito** discloses

- without pre-selection filter (see Fig. 2).
- filters (8, 9) as claimed (see col. 7, lines 1-6).
- varying first LO through a range of frequencies (see col. 6, lines 51-55).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims **37-50, 52-54** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Ito** in view of **Lemley** (US **6,029,054**).

Regarding claims **37, 39-40, 43**, the claims are rejected for the same reason as set forth in claim 32 above. However, **Ito** fails to disclose the second LO frequency is less than the first IF frequencies and the result output frequency of lower band is inverted. However, **Lemley** discloses a receiver wherein multiple conversion for IF frequencies are utilized and wherein the second LO frequency is less than the first IF frequencies and the output resulting from lower band is inverted (see **Fig. 2** and Band A). Since the use of multiple conversion is well known in the art, it would have been obvious to one skilled in the art at the time the invention was made to further incorporate **Lemley's** teaching to **Ito** to provide a double frequency conversion for IF signals, thereby providing LO frequency and inverted band as claimed, for providing a receiver with MMIC capability.

Regarding claims **38, 42, 44, 54**, the claims are rejected for the same reason as set forth in claim 32 above. However, **Ito** fails to disclose the second LO frequency is greater than the first IF frequencies and the result output frequency is non-inverted. However, **Lemley** discloses a receiver wherein multiple conversion for IF frequencies are utilized and wherein the second LO frequency is less than the first IF frequencies and the output resulting from the result output frequency is inverted (see **Fig. 2** and Band D). Since the use of multiple conversion is well known in the art, it would have been obvious to one skilled in the art at the time the invention was made to further incorporate **Lemley's** teaching to **Ito** to provide a double frequency conversion for IF

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signals, thereby providing LO frequency and non-inverted band as claimed, for providing a receiver with MMIC capability.

Regarding claims **41, 45-49**, the claims are rejected for the same reason as set forth in claims 37-38 above. In addition, since there are many variations in choosing LO frequencies with respect to the receiving frequency as seen in Fig. 2 of Lemley, it would have been obvious to one skilled in the art at the time the invention was made to further incorporate **Lemley's** teaching to Ito to provide different LO frequency range as claimed, as alternative choices in designing a multi-band receiver that provide an optimum performance in interested frequency bands available by the FCC.

Regarding claims **50, 52-53**, the claims are rejected for the same reason as set forth in claim 41 above. In addition, it would have been obvious to one skilled in the art at the time the invention was made to further modify **Lemley** and **Ito** to simply include a second converter as claimed, as a simple way of doubling the receiving bands of the dual-band receiver in Ito.

#### ***Allowable Subject Matter***

6. Claims 1-30, 55-59 are allowed.
7. Claim 51 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. The following is a statement of reasons for the indication of allowable subject matter: As to claims 1, 30, 51, the cited prior art fails to disclose or make it obvious the claimed invention for the reason as stated in Applicant's response filed on 8/29/05,

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pages 19-22, wherein a switch is configured to direct the first local oscillator signal either to the first mixer or to the second mixer as specified in the claims.

***Response to Arguments***

9. Applicant's arguments with respect to claims 1-59 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

10. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

(571) 273-8300 (for formal communications intended for entry)

(571)-273-7893 (for informal or draft communications).

Hand-delivered responses should be brought to Customer Service Window, Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Any inquiry concerning this communication or communications from the examiner should be directed to Duc M. Nguyen whose telephone number is (571) 272-7893, Monday-Thursday (9:00 AM - 5:00 PM).

Or to Edward Urban (Supervisor) whose telephone number is (571) 272-7899.

Duc M. Nguyen

Oct 18, 2005

